L-TAM Module 1 Section 4 Exercises

1. Given $l_{50} = 600$ and $l_{51} = 560$, determine each of the following:

   (a) $l_{50.25}$ using the UDD assumption
   (b) $l_{50.6}$ using the CF assumption

2. Given $l_{47} = 1000$, and $p_{47} = .95$, and ${}_2p_{47} = .90$ determine each of the following:

   (a) $l_{48.5}$ using the UDD assumption
   (b) $l_{48.3}$ using the CF assumption

3. Using ILT mortality, determine each of the following:

   (a) ${}_{0.2}q_{65.3}$ using the UDD assumption
   (b) ${}_{1.5}p_{72.2}$ using the CF assumption

4. Given $q_{30+k} = 0.1 + 0.05k$ for k = 0, 1, 2, and 3, determine each of the following:

   (a) ${}_{0.2}q_{31}$ using the UDD assumption
   (b) ${}_{1.5}p_{32}$ using the CF assumption
   (c) ${}_{0.4|0.6}q_{30.8}$ using the UDD assumption
   (d) ${}_{1.7|0.8}q_{31}$ using the CF assumption

5. Given ${}_{k|}q_{50} = 0.01(k+1)$ for k = 0, 1, 2, and 3, determine each of the following:

   (a) ${}_{0.2}q_{50}$ using the UDD assumption
   (b) ${}_{1.5}p_{51}$ using the CF assumption
   (c) ${}_{0.6|0.4}q_{50.8}$ using the UDD assumption
   (d) ${}_{1.8|0.7}q_{51}$ using the CF assumption

6. Given $q_k = 0.15 - .05k$, for k = 0, 1, and 2, determine

   (a) ${}_tp_1$ for $0 \le t \le 1$ using the UDD assumption
   (b) ${}_tp_2$ for $0 \le t \le 1$ using the UDD assumption

7. From a population of 1000 30-year olds, you are given ${}_nd_{30} = 20n$ for $0 \le n \le 20$ and ${}_nd_{50} = 30n$ for $0 \le n \le 20$. Determine ${}_{30}p_{35}$.

8. Given ${}_tp_{30} = (.9)^t$ for $0 \le t \le 20$ and ${}_tp_{50} = (.8)^t$ for $0 \le t \le 20$, determine ${}_{30}p_{35}$.